UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,022	07/24/2003	Charles E. Polk JR.	710101.1200	9976

24504 7590 02/16/2006	EXAMINER
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP	DILDINE JR, R STEPHEN

	ART UNIT	PAPER NUMBER
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948	2133	

DATE MAILED: 02/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/626,022	POLK ET AL.
	Examiner	**Art Unit**
	R. Stephen Dildine	2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Perriod for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Sitatus

1) ☐ Responsive to communication(s) filed on _____.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-27* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) *10-18 and 23-27* is/are allowed.
6) ☒ Claim(s) *1,2,4-8 and 19-22* is/are rejected.
7) ☒ Claim(s) *3 and 9* is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on *24 July 2003* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some * c) ☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/01/04, 07/24/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

U.S. Patent and Trademark Office
PTOL-326 (Rev. 7-05)
        Office Action Summary   Part of Paper No./Mail Date 01302005

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Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the

rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4-8 and 19-22 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kodama et al.

(2001/0056563) which shows:

a) a forward error correction (FEC) manager (reference discloses an "error control apparatus")

b) configured to receive, from a data stream, a first string of successive characters (D_0 to D_{15}, see Fig. 10)

c) and a second string of successive characters (D_{16} to D_{31}, see Fig. 10)

d) the FEC manager further configured to define a plurality of FEC code words based on the data stream

(FEC devices 54 and 56 of Fig. 2)

e) and to interleave the characters of the first and second strings such that each of the FEC code words

comprises characters from both of the strings ([0009] "Referring to FIG. 10, reception data 130 is

interleaved")

f) and a transmitter configured to transmit the FEC code words to a remote receiver ([0009] "The

interleaved reception data 130 is transmitted")

g) Wherein the transmitter transmits the FEC code words such that each character of the first string is

separated from each of the other characters of the first string by at least one character of the second

string ([0009] "Referring to FIG. 10, reception data 130 is interleaved not in the order of D_0 to D_{223} but

in the order of D_0, D_{16}, D_{32}, . . . , D_{209}, D_1, D_{17}, D_{33}, . . . , D_{210}, . . . , D_{222}, D_{15}, D_{31}, D_{47}, . . . , D_{207}, D_{223}"

h) wherein the transmitter transmits the FEC code words such that the characters are transmitted by the

transmitter in the same order that the characters are received by the FEC manager (see quote in § 7

above)

i) wherein the FEC manager is configured to define the FEC code words such that each character of the first string is assigned to a different one of the FEC code words and each character of the second string is assigned to a different one of the FEC code words (In Fig. 7, FEC 54 adds FEC code words to deinterleaved data)

j) wherein each of the FEC code words comprises a data portion and a checksum portion, the system further comprising a receiver configured to use the checksum portion of a corrupted FEC code word to recover a character in the data portion of the corrupted FEC code word ([0010] "When the error correcting code is added, error correction by the error correcting code is also conducted at this time")

k) wherein the FEC manager comprises a buffer having a plurality columns, the FEC manager configured to store each character of the first string in a first buffer column and each character of the second string in a second buffer column (see Fig. 10 and paragraph [0009])

l) wherein the FEC manager is configured to output the characters of the first string from the first column and to then output the characters of the second string from the second column (in Fig. 7, selector 100 can select uninterleaved data).

Kodama *et al.* also discloses the corresponding method as in applicants' claims 19-22.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 8 recites that "the FEC manager is configured to output the characters of the first string from the first column and to then output the characters of the second string from the second column" which is the same manner in which parent claim 7 recited that the data is stored in the buffer; however, applicant states in paragraph [0008] "Generally, embodiments of the present invention provide a forward error correction (FEC) system and method for interleaving and transmitting FEC code words", which amounts to an admission that the invention does not encompass the transmission of uninterleaved data as recited in claim 8.

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Allowable Subject Matter

Claims 3 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 10-18 and 23-27 are allowed.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Friedman et al. (5,983,388) is cited to show updating Reed-Solomon code words as data is received, Ohlson et al. (6,377,557) is cited to show an interleaver which reads data into a row and reads data out in a column, Gibson et al. (6,922,806) is cited to show interleaving over a plurality of channels, Takeuchi et al. (JP 09-298526) is cited to show an interleaver which reads data into a row and reads data out in a column.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. Stephen Dildine whose telephone number is (571) 272-3820. The examiner can normally be reached on M - F 5:30 am to 2:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. Stephen Dildine
Primary Examiner
Art Unit 2133

R. Stephen Dildine